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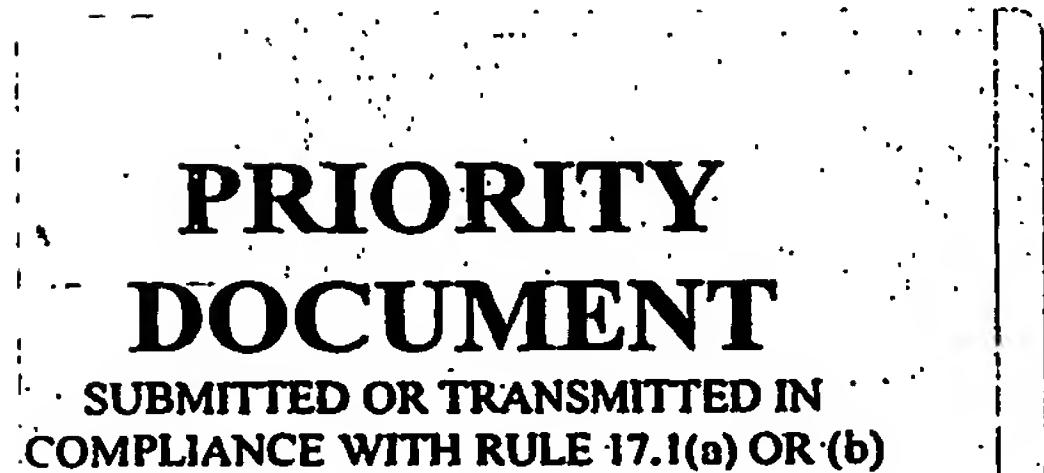
Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

03290963.2



Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk



Anmeldung Nr:
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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

Method to decode a data string

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Method to decode a data string

The invention relates to decode data transmitted via US National Weather Service NOAA Weather Radio (NWR) transmitters. Decoding according to the proposed algorithm is very reliable.

Background:

A typical string format is:

ZCZC-ORG-WXR-PSSCCC-PSSCCC+TTTT-JJJHHMM-LLLLLLL-

where, PSSCCC is the Location data, and TTTT is the Duration data.

- Three signals burst are all captured before decoding, i.e., we have three strings of data.
- Corruption can happens anywhere along the string.
- Usually, if corruption happens at certain location N, all the remaining N+1, +2, +3 ... data are corrupted as well.
- Software considers location data(PSSCCC) and duration data(TTTT) as important data that can have no ambiguity.
- String_1 refers to data collected from 1st burst, String_2 from 2nd burst and String_3 from 3rd burst.

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Software Algorithm:

Stage1:

Purpose: to determine the length of the string, which then helps to pinpoint the location and duration data position.

- 1) Software attempts to locates the "+" data byte in all 3 Strings.
- 2) Comparison of the "+" data byte location among the 3 Strings is done.
- 3) Whichever 2 Strings give the same "+" location (example, String_1's "+" and String_3's "+" both equal 27), we found the String length.
- 4) If none is the same, we revisit each String. We check for the String that could give us "-" at location "+" + 5. (..CCC+TTTT-JJ....)
- 5) If found, the length of string is then determined.

Stage2:

Purpose: to clean up any unwanted data after the last valid data, base on the length of string.

+TTTT-JJJHHMM-LLLLLLL-*#& => +TTTT-JJJHHMM-LLLLLLL-

- 1) As transmission does not terminate instantly, a few bytes of unwanted data may be recorded.
- 2) These unwanted data are cleaned up.

Stage3:

Purpose: Byte level comparison to check for two same byte of data.

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Example, at location x, String_1 data is "-", String_2 data is "R", String_3 data is "R", String_1 data is replace with "R".

- 1) At all location, whichever two string returns the same data that value will be taken as the correct data.
- 2) If all the 3 values are different, proceed to stage 4.

Stage4:

Purpose: to search for the most logical data.

- 1) Base on the string length, we know the exact location of the important data segment.

ZCZC-ORG-WXR-PSSCCC-PSSCCC+TTTT-JJJHHMM-LLLLLLL-

- 2) If the disputed data location does not belong to the important segment, we ignore the error.
- 3) If it does belong, we look at all three data. We choose the one that gives a meaningful data.
- 4) By meaningful data, we means, a number (0-9), a minus ("-") or a plus ("+").

ZCZC-ORG-WXR-018097-018101+0015-JJJHHMM-LLLLLLL-

- 5) Reconstruction fails if we cannot identify a meaningful data.

- 6) If there is error, we know that software receive an event, but data is too corrupted to be deciphered.
- 7) Error message is pop-up only when strings are received but error occurs in correction.

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What software can handles:

- Three identical strings.
- Two identical strings.
- Corruption at different location of the string.
- Corruption at the same location of the string but at least one of the string returns a meaningful value.
- Corruption at the same location of the string, none returns a meaningful value, but it's not in the important segment.

What software cannot handles:

- Three different strings
- Corruption happens at the same location and none of the string gives a meaningful value and it happens at the important data segment.

What NOAA recommends:

NOAA recommends at least a two byte match.

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Claims

- 1) Method to decode a received data string, comprising the steps of
 - determining the length of said string
 - pinpointing predetermined data positions using said length
 - removing data from said string starting from a position determined by said length.
- 2) Method according to claim 1, further comprising the steps of
 - comparing, byte by byte, different strings assumed to contain identical data
 - taking as correct data those bytes for which said comparison gives the result "identical".
- 3) Method according to claim 2, wherein the comparison is based on more than two strings, and the correct data is determined by majority vote.
- 4) Method according to claim 2 or 3 comprising the further step of
 - searching for the most logical data in case that no correct data can be determined.